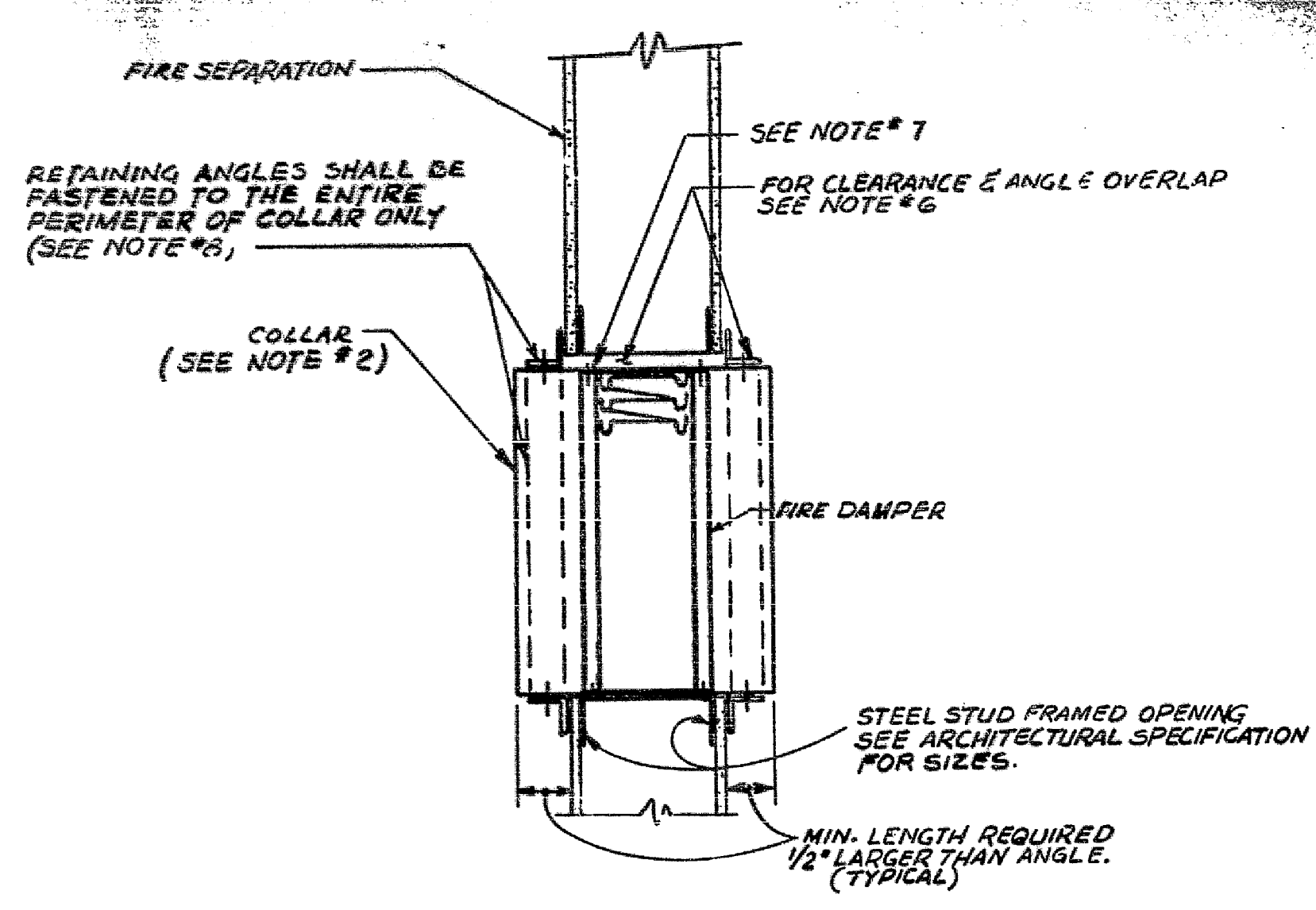
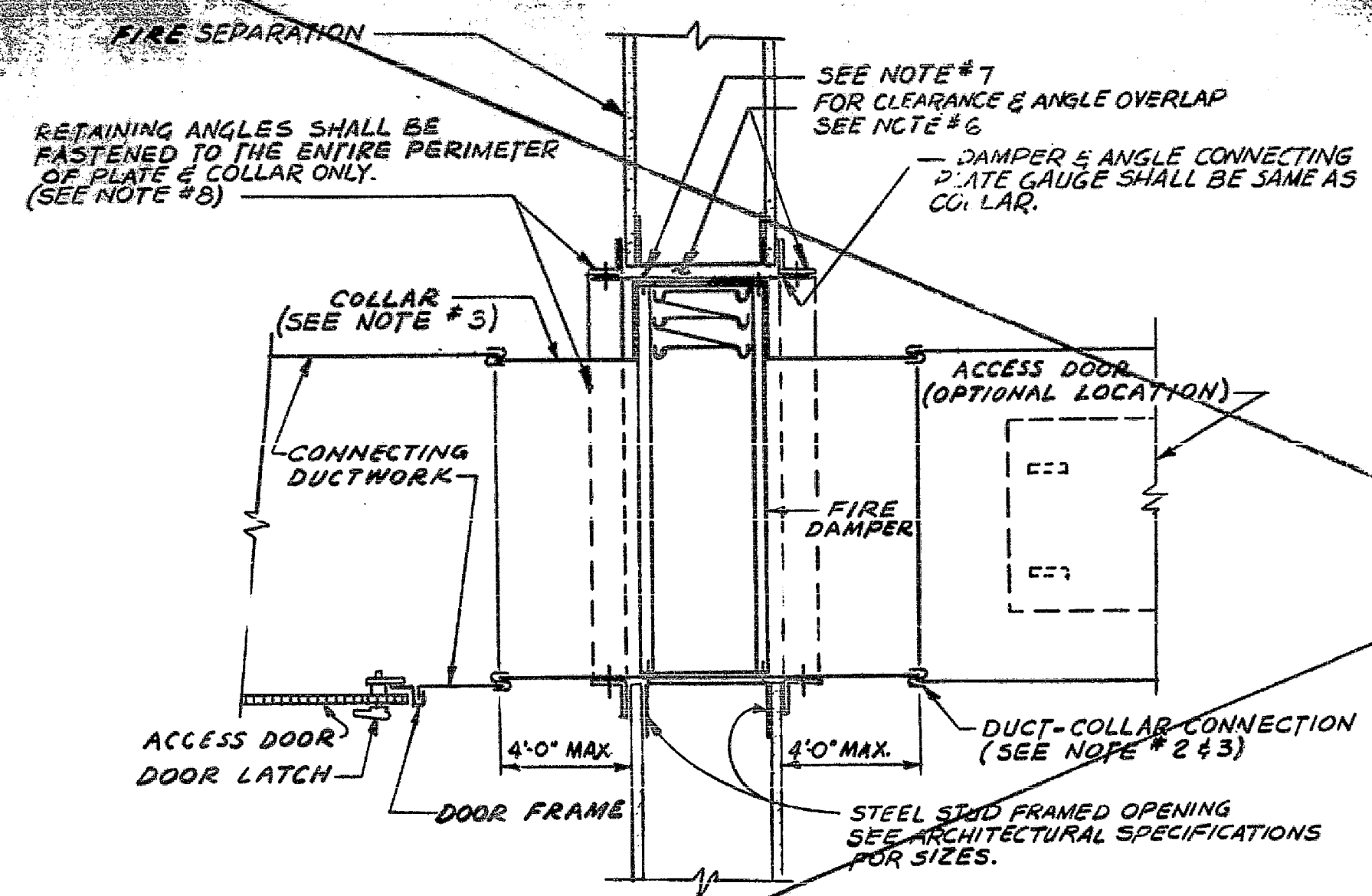


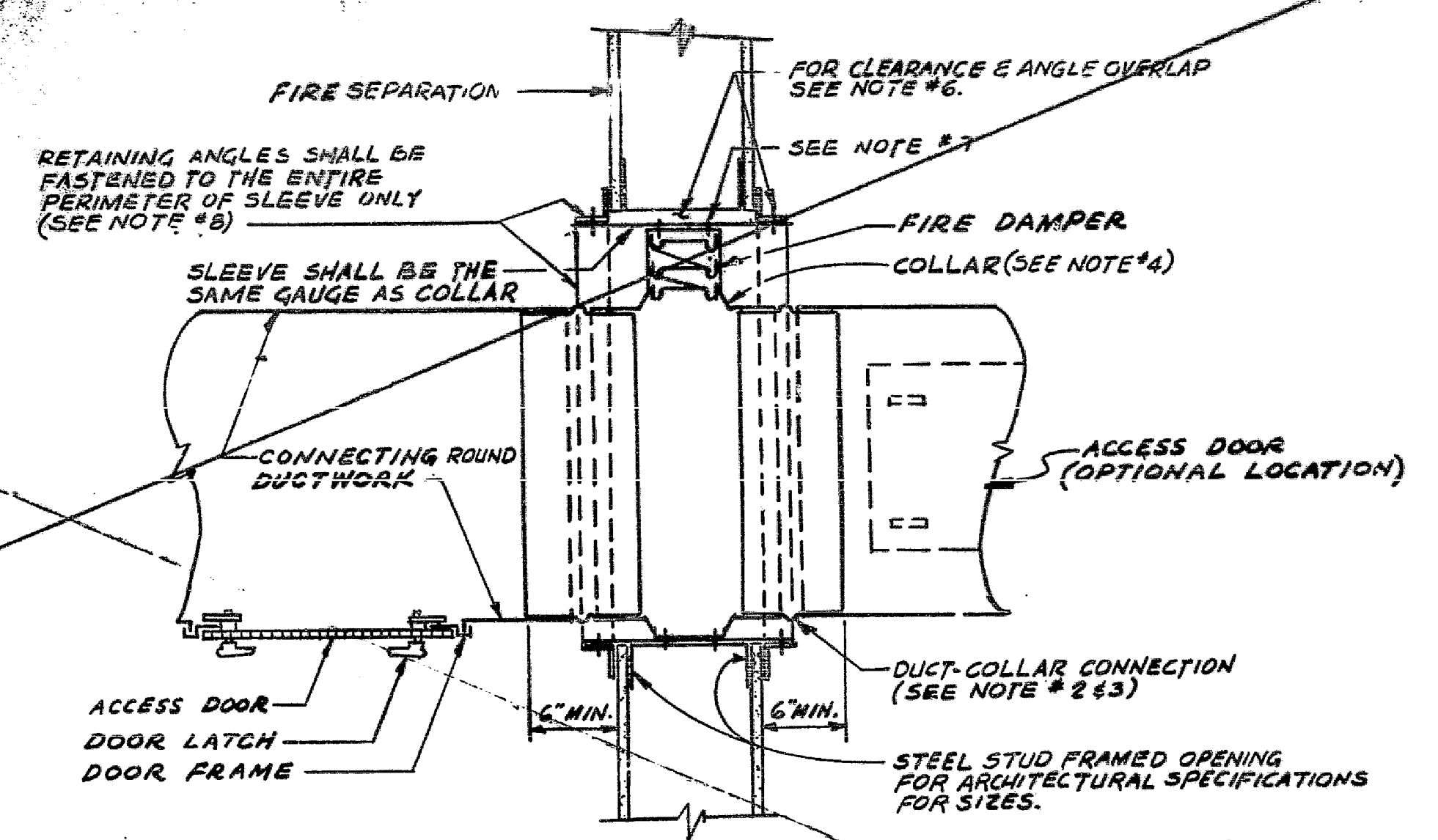
498-228
Tangent Int'l. Computer Consultants Inc.
577.199
M-3 2/26/80



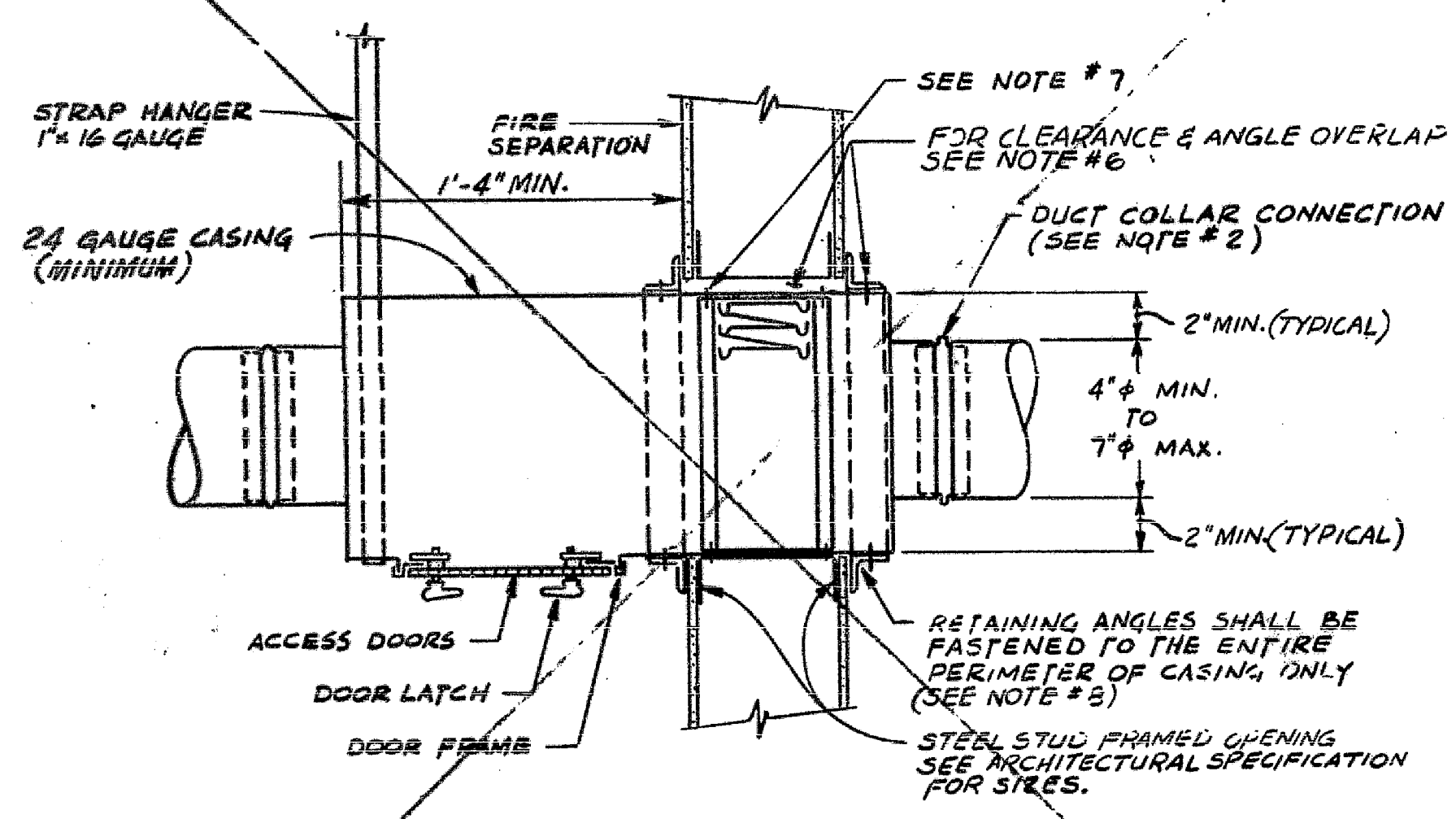
TRANSFER DUCT WITH TYPE "A" FIRE DAMPER



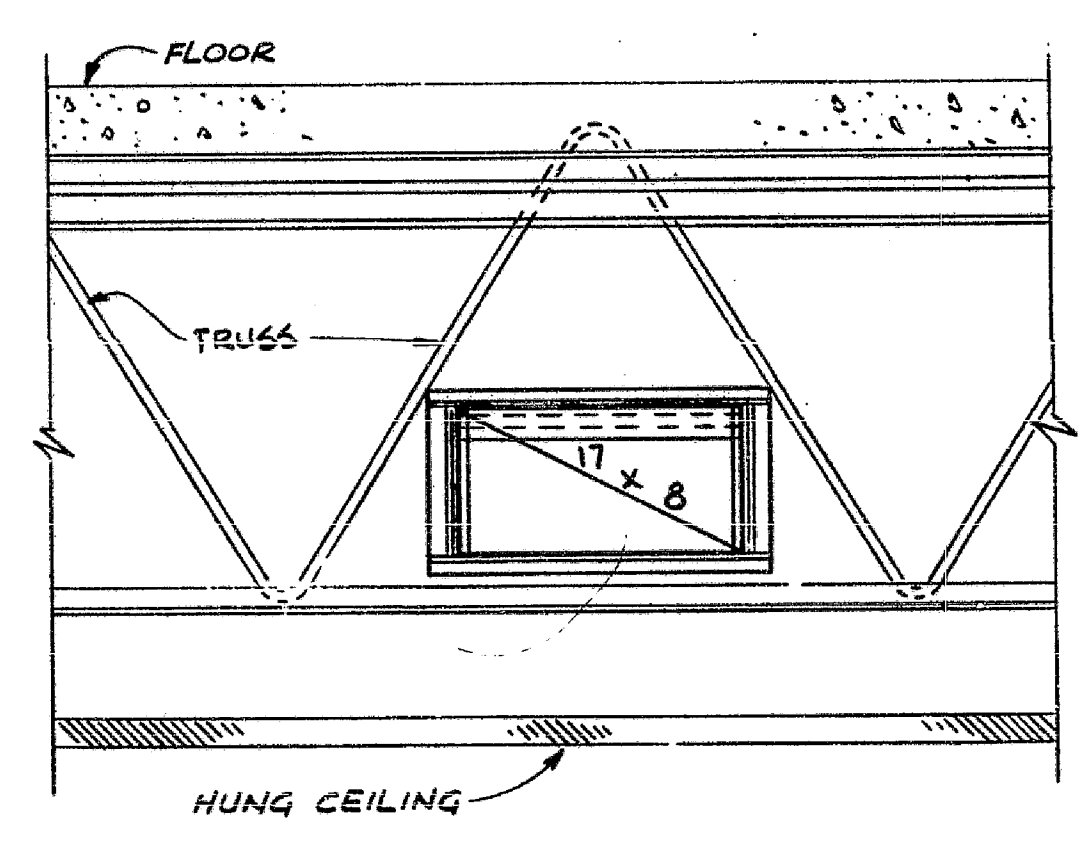
BRANCH OR MAIN DUCT WITH TYPE "B" FIRE DAMPER



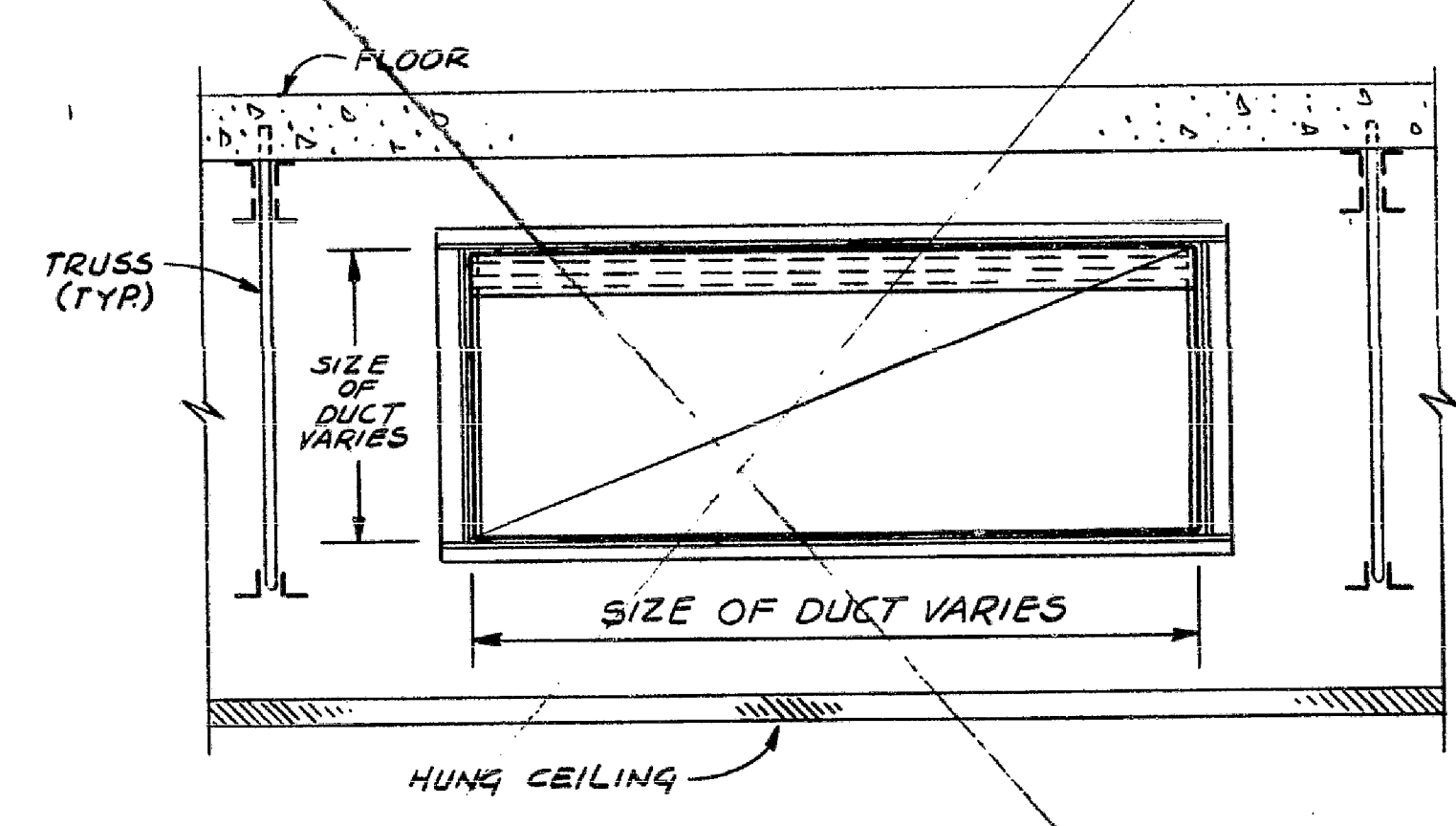
PERIPHERAL SUPPLY DUCT WITH TYPE "C" FIRE DAMPER (HIGH PRESSURE)



DETAIL OF FINGER OR FLEXIBLE ROUND DUCT WITH TYPE "B" FIRE DAMPER



ELEVATION
DETAIL OF TRANSFER DUCT IN TRUSSES WITH TYPE "A" FIRE DAMPER



ELEVATION
DETAIL OF TRANSFER DUCT BETWEEN TRUSSES WITH TYPE "A" FIRE DAMPER

FIRE DAMPER NOTES

1. All fire dampers shall be rated to maintain the rating of the fire separation. They shall be approved and labelled by Underwriter's Laboratories (U.L.) and Board of Standards and Appeals (B.S.A.). The installation shall be in accordance with manufacturer's (U.L.) approved instructions. Dampers shall be as manufactured by Air Balance Inc., Air Damper Mfg. Corp., Airstream Products, Inc. or an approved equal.
2. All duct-collar connections shall comply with ASHRAE & SMACNA.
3. Gauges for collars for rectangular duct shall be as follows:
 - a) When duct-collars are connected with a rigid connection similar to angle reinforced standing seam, angle reinforced pocket lock, or companion angle, a minimum 16 gauge up to 36" wide x 24" high and 14 gauge for larger sizes shall be installed.
 - b) When other duct-collar connections are utilized the collar gauge shall comply with ASHRAE & SMACNA.
4. Gauges for collars in round duct shall be a minimum of 18 gauge.
5. After the installation of dampers the contractor shall seal and tape all joints for air tightness. Sealants used shall be 3M Company No. 800; Miracle Adhesive Corporation or an approved equal and Grey Vinyl Duct Tape as manufactured by Nashua Corporation or an approved equal.
6. To allow for expansion, dampers shall have a top clearance equivalent to 1/8" for each foot of damper height. The side clearance shall be 1/8" for each foot of damper width divided equally to the right and left of the collar. The maximum clearance for the top and the total of both sides shall be 1/2" each. The retaining angles shall be 1 1/2" x 1 1/2" x 1/8", so that there will be a minimum of 1" of overlap on the fire separation.
7. Damper shall be secured to collar with either 1/2" tackwelds, No. 10 sheet metal screws, 1/4" Dia. nuts and bolts, or 3/16" steel pop rivets, all 6" on center.
8. Retaining angles shall be secured to collar, sleeve or plate with either 1/2" tackwelds, No. 10 sheet metal screws, 1/4" Dia. nuts and bolts, or 3/16" steel pop rivets, all 6" on center.
9. Where the hung ceiling does not have removable tiles an access door (fire-rated where required) shall be installed in ceiling rear location of fire damper.
10. All retaining angles shall be galvanized steel.

RELEASED FOR BIDDING
BY *[Signature]* DATE 3-5-80
RELEASED FOR CONSTRUCTION
BY *[Signature]* DATE 3/21/80
MANAGER, WTC PLANNING DIVISION

THIS DRAWING SUBJECT TO CONDITIONS IN CONTRACT. ALL INVENTIONS, IDEAS, DESIGNS AND METHODS HEREIN ARE RESERVED TO PORT AUTHORITY AND MAY NOT BE USED WITHOUT ITS WRITTEN CONSENT.

RN DESIGNED J.W.R.	REVISIONS					
	NO.	DATE	APPD.	DESCRIPTION	NO.	DATE
DRAWN						
CHECKED						
AD IN CHARGE						

[Signature]
ASS'T CHIEF ENGINEER
OF DESIGN & RESEARCH

[Signature]
ENGINEER OF DESIGN
(AIRPORTS & WTC)

FEB. 26, 1980
DATE

THE PORT AUTHORITY OF NY & NJ
THE WORLD TRADE CENTER
TOWER A 98TH FLOOR
TANGENT INTERNATIONAL
COMPUTER CONSULTANTS, INC.

MECHANICAL
STANDARD DETAILS OF
VERTICAL MOUNTED FIRE DAMPERS
SCALE NONE
CONTRACT NO. WTC 577.199
DRAWING NO. M-3